NOVEMBER/DECEMBER 2023

DCH22/GCH22 — INORGANIC CHEMISTRY–II

Time : Three hours　　　　Maximum : 75 marks

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SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What type of non-stoichiometric point defect is responsible for the pink colour of LiCl?

2. How will you distinguish between Tetrahedral and octahedral voids?

3. What is spallation reaction?

4. What is beta - decay?

5. Write any two applications of neutron activation analysis.

6. Discuss the various components of nuclear reactor.

7. Write any two differences between lanthanides and actinides.

8. What is lanthanide contraction?

9. Write two important roles of copper in our body.

10. Name any four chief heme proteins.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Write a note on Inorganic phosphores.

Or

(b) Write a note on ferrites.

12. (a) Discuss on the Q value in nuclear chemistry.

Or

(b) Describe Cherenkov counter.

13. (a) Explain radio analytical methods.

Or

(b) Write short note on

(i) Stellar Energy.

(ii) Hydrogen burning.

14. (a) Write a note on oxidation state and coordination numbers of f block elements.

Or

(b) Discuss the biomedical application of nanomaterials.

15. (a) Explain the role of metalloenzymes in biological systems.

Or

(b) List the micro and macro nutrient. Explain their role in biochemistry.

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SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the terms:

(a) Spinel

(b) Antispinels

(c) Nickel arsenide structure (3+3+4)

17. Discuss the following

(a) cloud chamber

(b) nuclear emulsion,

(c) Bubble chamber. (3+3+4)

18. Explain about G.M. Scintillation and Cyclotron accelerators. (5+5)

19. Explain Bottom-Up synthesis of nanoparticles.

20. Write a note on photosynthetic process and nitrogen cycle. (5+5)
